OM protein - protein search, using sw model

Run on: February 11, 2003, 19:43:19 ; Search time 33.9429 Seconds
(without alignments)
1837.243 Million cell updates/sec

Title: US-09-497-967-7
Perfect score: 2540
Sequence: 1 MKNNILVILIISLFINQIKS.....QCDFANFLSISLLLISYYLL 468

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_101002:*
1: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1980.DAT:*
2: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1981.DAT:*
3: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1982.DAT:*
4: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1983.DAT:*
5: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1984.DAT:*
6: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1985.DAT:*
7: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1986.DAT:*
8: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1987.DAT:*
9: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1988.DAT:*
10: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1989.DAT:*
11: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1990.DAT:*
12: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1991.DAT:*
13: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1992.DAT:*
14: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT:*
15: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1994.DAT:*
16: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1995.DAT:*
17: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1996.DAT:*
18: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1997.DAT:*
19: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1998.DAT:*
20: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
21: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2000.DAT:*
22: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2001.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2002.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	2540	100.0	468	21	AAB25860	55kD i-antigen pro
2	2540	100.0	468	21	AAY97177	55 kDa immobilizat
3	2533	99.7	468	21	AAB25882	Synthetic 55kD i-a
4	921	36.3	442	21	AAB25859	48kD i-antigen pro
5	921	36.3	442	21	AAY97176	48 kDa immobilizat
6	801.5	31.6	409	21	AAB25889	IAG48 (G1) surface
7	424	16.7	76	21	AAB25885	55kD i-antigen ami
8	404	15.9	72	21	AAB25883	55kD i-antigen ami
9	403	15.9	71	21	AAB25886	55kD i-antigen ami
10	389	15.3	72	21	AAB25888	55kD i-antigen ami
11	375	14.8	70	21	AAB25884	55kD i-antigen ami
12	373	14.7	70	21	AAB25887	55kD i-antigen ami
13	213.5	8.4	1588	23	ABB09437	H. influenzae DXR
14	212	8.3	72	21	AAB25865	48kD i-antigen re
15	206	8.1	3396	22	ABB64261	Drosophila melanog
16	203.5	8.0	524	22	AAU07370	G protein-coupled
17	203.5	8.0	1700	21	AAB18144	Plasmodium falcipa
18	191.5	7.5	1679	22	AAU07343	1-aminocyclopropan
19	188	7.4	1576	21	AAB19802	Human laminin 2 ma
20	188	7.4	1576	21	AAB48453	Human laminin 8 po
21	188	7.4	1576	23	ABB81595	Human laminin 10 t
22	188	7.4	1584	21	AAB19804	Human laminin 2 ga
23	188	7.4	1609	19	AAW50898	Human laminin G1 c
24	188	7.4	1609	21	AAB19801	Human laminin 2 ga
25	188	7.4	1609	21	AAB48452	Human laminin 8 po
26	188	7.4	1609	23	ABB81594	Human laminin 10 t
27	188	7.4	1617	21	AAB19803	Human laminin 2 ga
28	185.5	7.3	1316	22	AAB94754	Human protein sequ
29	185.5	7.3	3594	23	AAE20147	Mouse C3b/C4b comp
30	185	7.3	399	21	AAB25890	VspA6-S1 gene prod
31	183.5	7.2	925	23	AAO14246	Human presenilin e
32	183.5	7.2	1679	22	ABB60498	Drosophila melanog
33	183.5	7.2	1679	22	ABB60502	Drosophila melanog
34	183.5	7.2	3571	23	AAE20146	Human C3b/C4b comp
35	182.5	7.2	720	23	AAO14994	Laminin-related pr
36	179.5	7.1	89	21	AAB25862	48kD i-antigen re
37	179.5	7.1	1572	21	AAB19806	Mouse laminin 2 ma
38	179.5	7.1	1572	21	AAB48455	Mouse laminin 8 po
39	179.5	7.1	1572	23	ABB81597	Mouse laminin 10 t
40	179.5	7.1	1605	21	AAB19805	Mouse laminin 2 ga
41	179.5	7.1	1605	21	AAB48454	Mouse laminin 8 po
42	179.5	7.1	1605	23	ABB81596	Mouse laminin 10 t
43	179	7.0	467	21	AAY79332	Human EGF repeat-c
44	178.5	7.0	1607	19	AAW50897	Mouse laminin G1 c
45	175.5	6.9	2901	22	ABG09763	Novel human diagno

ALIGNMENTS

RESULT 1
AAB25860
ID AAB25860 standard; Protein; 468 AA.
XX
AC AAB25860;
XX
DT 18-DEC-2000 (first entry)
XX
DE 55kD i-antigen protein of parasite isolate G5.
XX
KW Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
KW white spot disease; freshwater fish; immune response; infection control.
XX
OS Ichthyophthirius multifiliis.
XX
PN WO200046373-A1.
XX
PD 10-AUG-2000.
XX
PF 04-FEB-2000; 2000WO-US02962.
XX
PR 04-FEB-1999; 99US-0118634.
PR 02-MAR-1999; 99US-0122372.
PR 17-MAR-1999; 99US-0124905.
PR 27-APR-1999; 99US-0131121.
XX
PA (UYGE-) UNIV GEORGIA RES FOUND INC.
PA (CORR) CORNELL RES FOUND INC.
PA (CLAR/) CLARK T G.
PA (DICK/) DICKERSON H W.
PA (LINT/) LIN T.
XX
PI Clark TG, Dickerson HW, Lin T;

XX
DR WPI; 2000-506071/45.
XX
PT Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
PT multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
PT infection in fish -
XX
PS Claim 3; Figure 3; 144pp; English.
XX
CC This invention relates to novel i-antigen polypeptide sequences.
CC I-antigens or immobilisation antigens ar common to a variety of
CC hymenostomatid ciliates and their expression varies in response to
CC environmental stimuli. This invention relates to i-antigens in
CC Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
CC of freshwater fish causing ichthyophthiriasis or white spot disease. The
CC invention includes two polypeptide and polynucleotide sequences for two
CC i-antigens, of 48 and 55 kD. Also included in the invention are
CC antibodies capable of binding to the nucleotide sequences and a method
CC for identifying I. multifiliis serotypes using the nucleotide sequences.
CC A composition (containing the i-antigen nucleotide) capable of eliciting
CC an immune response in fish is useful for prophylaxis, treatment or for
CC controlling I. multifiliis infection in fish. Polynucleotide or protein
CC vaccines comprising a portion of the amplified product encoding an
CC antigenic i-antigen polypeptide obtained is also useful for treating or
CC preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
CC and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC fragments identified in the invention. Sequences AAA97043-A97064
CC (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
SQ Sequence 468 AA;

Query Match 100.0%; Score 2540; DB 21; Length 468;
Best Local Similarity 100.0%; Pred. No. 9.4e-194;
Matches 468; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy       1 MKNNILVILIISLFINQIKSANCPVGTETNTAGQVDDLGTPANCVNCQKNFYYNNAAAFV 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 MKNNILVILIISLFINQIKSANCPVGTETNTAGQVDDLGTPANCVNCQKNFYYNNAAAFV 60

Qy      61 PGASTCTPCPQKKDAGAQPNPPATANLVTQCNVKCPAGTAIAGGATDYAAIITECVNCRI 120
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 PGASTCTPCPQKKDAGAQPNPPATANLVTQCNVKCPAGTAIAGGATDYAAIITECVNCRI 120

Qy     121 NFYNENAPNFNAGASTCTACPVNRVGGALTAGNAATIVAQCNVACPTGTALDDGVTTDYV 180
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 NFYNENAPNFNAGASTCTACPVNRVGGALTAGNAATIVAQCNVACPTGTALDDGVTTDYV 180

Qy     181 RSFTECVKCRLNFYYNGNNGNTPFNPGKSQCTPCPAIKPANVAQATLGNDATITAQCNVA 240
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     181 RSFTECVKCRLNFYYNGNNGNTPFNPGKSQCTPCPAIKPANVAQATLGNDATITAQCNVA 240

Qy     241 CPDGTISAAGVNNWVAQNTECTNCAPNFYNNNAPNFNPGNSTCLPCPANKDYGAEATAGG 300
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     241 CPDGTISAAGVNNWVAQNTECTNCAPNFYNNNAPNFNPGNSTCLPCPANKDYGAEATAGG 300

Qy     301 AATLAKQCNIACPDGTAIASGATNYVILQTECLNCAANFYFDGNNFQAGSSRCKACPANK 360
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     301 AATLAKQCNIACPDGTAIASGATNYVILQTECLNCAANFYFDGNNFQAGSSRCKACPANK 360

Qy     361 VQGAVATAGGTATLIAQCALECPAGTVLTDGTTSTYKQAASECVKCAANFYTTKQTDWVA 420
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     361 VQGAVATAGGTATLIAQCALECPAGTVLTDGTTSTYKQAASECVKCAANFYTTKQTDWVA 420

Qy     421 GIDTCTSCNKKLTSGAEANLPESAKKNIQCDFANFLSISLLLISYYLL 468
          ||||||||||||||||||||||||||||||||||||||||||||||||||
Db     421 GIDTCTSCNKKLTSGAEANLPESAKKNIQCDFANFLSISLLLISYYLL 468
```

RESULT 2
AAY97177
ID AAY97177 standard; Protein; 468 AA.
XX
AC AAY97177;
XX
DT 04-DEC-2000 (first entry)
XX
DE 55 kDa immobilization antigen.
XX
KW BTU1; beta-tubulin; protein expression system; negative selection;
KW paclitaxel sensitivity; cell surface; antigen; protozoa; ciliate;
KW live vaccine; Ichthyophthiius multifiliis; immobilization-antigen;
KW i-antigen; freshwater; fish; protozoacide.
XX
OS Ichthyophthiius multifiliis.
XX
FH Key Location/Qualifiers
FT Misc-difference 1..468
FT /note= "Gln encoded by CAR or TAA"
XX
PN WO200046381-A1.
XX
PD 10-AUG-2000.
XX
PF 04-FEB-2000; 2000WO-US02966.
XX
PR 04-FEB-1999; 99US-0118634.
PR 02-MAR-1999; 99US-0122372.
PR 17-MAR-1999; 99US-0124905.
PR 27-APR-1999; 99US-0131121.
XX
PA (UYGE-) UNIV GEORGIA RES FOUND INC.
PA (GAER/) GAERTIG J.
PA (DICK/) DICKERSON H W.
PA (CLAR/) CLARK T G.
XX
PI Gaertig J, Dickerson HW, Clark TG;
XX
DR WPI; 2000-514962/46.
DR N-PSDB; AAA52136.
XX
PT Recombinant expression systems for expressing heterologous nucleic
PT acids and producing recombinant protein, comprises nonpathogenic
PT protozoa such as Tetrahymena resistant to paclitaxel
XX
PS Disclosure; Fig 3A; 83pp; English.
XX
CC Tetrahymena thermophila expresses two major beta-tubulin genes (BTU1 and
CC BTU2), which encode identical beta-tubulin proteins. Either of these two
CC genes (but not both at once) can be disrupted without a detectable change
CC in the cell phenotype. A K350L substitution in the BTU1 beta-tubulin
CC protein confers increased resistance to microtubule-depolymerizing drugs
CC and increased sensitivity to paclitaxel, a microtubule-stabilizing drug.
CC Cells carrying the Btu1-1K350M allele can be transformed to paclitaxel
CC resistance by gene replacement of Btu1-1K350M with a wild-type BTU1 gene
CC fragment, eliminating the need to incorporate a means for positive
CC selection. Where the host organism is not a T. thermophila mutant
CC containing the Btu1-1K350M allele, BTU1::neo1 construct, which
CC substitutes the coding region of the neo1 gene (conferring resistance to
CC parmomycin) for that of BTU1, can be used to generate BTU1 gene knockouts
CC and for positive selection. Heterologous nucleic acids (especially
CC encoding antigenic polypeptides) can be inserted into a BTU gene for
CC successful cell-surface expression that is maintained by way of negative
CC selection. Preferred expression vectors disrupt the Btu1-1K350M gene by
CC homologous recombination-mediated insertion of a heterologous nucleic
CC acid, thereby restoring resistance to paclitaxel in the resulting
CC transgenic host. Transgenic ciliated protozoa are useful as live vaccines
CC for stimulating an immune response in a vertebrate. The transgenic
CC protozoan host cells are also useful for producing polyclonal antibodies
CC (claimed). In particular, Tetrahymena expressing Ichthyophthiius
CC multifiliis immobilization-antigen (i-antigen) protein on their surface
CC are effective vehicles for vaccination of freshwater fish against
CC infection by I. multifiliis.
XX
SQ Sequence 468 AA;

```
  Query Match           100.0%;  Score 2540;  DB 21;  Length 468;
  Best Local Similarity  100.0%;  Pred. No. 9.4e-194;
  Matches  468;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 MKNNILVILIISLFINQIKSANCPVGTETNTAGQVDDLGTPANCVNCQKNFYYNNAAAFV 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 MKNNILVILIISLFINQIKSANCPVGTETNTAGQVDDLGTPANCVNCQKNFYYNNAAAFV 60

Qy      61 PGASTCTPCPQKKDAGAQPNPPATANLVTQCNVKCPAGTAIAGGATDYAAIITECVNCRI 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 PGASTCTPCPQKKDAGAQPNPPATANLVTQCNVKCPAGTAIAGGATDYAAIITECVNCRI 120

Qy     121 NFYNENAPNFNAGASTCTACPVNRVGGALTAGNAATIVAQCNVACPTGTALDDGVTTDYV 180
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 NFYNENAPNFNAGASTCTACPVNRVGGALTAGNAATIVAQCNVACPTGTALDDGVTTDYV 180

Qy     181 RSFTECVKCRLNFYYNGNNGNTPFNPGKSQCTPCPAIKPANVAQATLGNDATITAQCNVA 240
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     181 RSFTECVKCRLNFYYNGNNGNTPFNPGKSQCTPCPAIKPANVAQATLGNDATITAQCNVA 240

Qy     241 CPDGTISAAGVNNWVAQNTECTNCAPNFYNNNAPNFNPGNSTCLPCPANKDYGAEATAGG 300
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     241 CPDGTISAAGVNNWVAQNTECTNCAPNFYNNNAPNFNPGNSTCLPCPANKDYGAEATAGG 300

Qy     301 AATLAKQCNIACPDGTAIASGATNYVILQTECLNCAANFYFDGNNFQAGSSRCKACPANK 360
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     301 AATLAKQCNIACPDGTAIASGATNYVILQTECLNCAANFYFDGNNFQAGSSRCKACPANK 360

Qy     361 VQGAVATAGGTATLIAQCALECPAGTVLTDGTTSTYKQAASECVKCAANFYTTKQTDWVA 420
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     361 VQGAVATAGGTATLIAQCALECPAGTVLTDGTTSTYKQAASECVKCAANFYTTKQTDWVA 420

Qy     421 GIDTCTSCNKKLTSGAEANLPESAKKNIQCDFANFLSISLLLISYYLL 468
           |||||||||||||||||||||||||||||||||||||||||||||||||
Db     421 GIDTCTSCNKKLTSGAEANLPESAKKNIQCDFANFLSISLLLISYYLL 468
```

RESULT 3
AAB25882
ID AAB25882 standard; Protein; 468 AA.
XX
AC AAB25882;
XX
DT 18-DEC-2000 (first entry)
XX
DE Synthetic 55kD i-antigen protein L6P.
XX
KW Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
KW white spot disease; freshwater fish; immune response; infection control.
XX
OS Ichthyophthirius multifiliis.
OS Synthetic.
XX
PN WO200046373-A1.
XX
PD 10-AUG-2000.
XX
PF 04-FEB-2000; 2000WO-US02962.
XX
PR 04-FEB-1999; 99US-0118634.
PR 02-MAR-1999; 99US-0122372.
PR 17-MAR-1999; 99US-0124905.
PR 27-APR-1999; 99US-0131121.
XX
PA (UYGE-) UNIV GEORGIA RES FOUND INC.
PA (CORR) CORNELL RES FOUND INC.
PA (CLAR/) CLARK T G.
PA (DICK/) DICKERSON H W.
PA (LINT/) LIN T.
XX
PI Clark TG, Dickerson HW, Lin T;
XX
DR WPI; 2000-506071/45.
XX
PT Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
PT multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
PT infection in fish -
XX
PS Example 5; Figure 14; 144pp; English.
XX
CC This invention relates to novel i-antigen polypeptide sequences.
CC I-antigens or immobilisation antigens ar common to a variety of
CC hymenostomatid ciliates and their expression varies in response to
CC environmental stimuli. This invention relates to i-antigens in
CC Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
CC of freshwater fish causing ichthyophthiriasis or white spot disease. The
CC invention includes two polypeptide and polynucleotide sequences for two
CC i-antigens, of 48 and 55 kD. Also included in the invention are
CC antibodies capable of binding to the nucleotide sequences and a method
CC for identifying I. multifiliis serotypes using the nucleotide sequences.
CC A composition (containing the i-antigen nucleotide) capable of eliciting
CC an immune response in fish is useful for prophylaxis, treatment or for
CC controlling I. multifiliis infection in fish. Polynucleotide or protein
CC vaccines comprising a portion of the amplified product encoding an
CC antigenic i-antigen polypeptide obtained is also useful for treating or
CC preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
CC and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC fragments identified in the invention. Sequences AAA97043-A97064
CC (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
SQ Sequence 468 AA;

```
  Query Match           99.7%;  Score 2533;  DB 21;  Length 468;
  Best Local Similarity  99.8%;  Pred. No. 3.4e-193;
  Matches  467;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 MKNNILVILIISLFINQIKSANCPVGTETNTAGQVDDLGTPANCVNCQKNFYYNNAAAFV 60
           ||||| ||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 MKNNIPVILIISLFINQIKSANCPVGTETNTAGQVDDLGTPANCVNCQKNFYYNNAAAFV 60

Qy      61 PGASTCTPCPQKKDAGAQPNPPATANLVTQCNVKCPAGTAIAGGATDYAAIITECVNCRI 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 PGASTCTPCPQKKDAGAQPNPPATANLVTQCNVKCPAGTAIAGGATDYAAIITECVNCRI 120

Qy     121 NFYNENAPNFNAGASTCTACPVNRVGGALTAGNAATIVAQCNVACPTGTALDDGVTTDYV 180
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 NFYNENAPNFNAGASTCTACPVNRVGGALTAGNAATIVAQCNVACPTGTALDDGVTTDYV 180

Qy     181 RSFTECVKCRLNFYYNGNNGNTPFNPGKSQCTPCPAIKPANVAQATLGNDATITAQCNVA 240
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     181 RSFTECVKCRLNFYYNGNNGNTPFNPGKSQCTPCPAIKPANVAQATLGNDATITAQCNVA 240

Qy     241 CPDGTISAAGVNNWVAQNTECTNCAPNFYNNNAPNFNPGNSTCLPCPANKDYGAEATAGG 300
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     241 CPDGTISAAGVNNWVAQNTECTNCAPNFYNNNAPNFNPGNSTCLPCPANKDYGAEATAGG 300

Qy     301 AATLAKQCNIACPDGTAIASGATNYVILQTECLNCAANFYFDGNNFQAGSSRCKACPANK 360
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     301 AATLAKQCNIACPDGTAIASGATNYVILQTECLNCAANFYFDGNNFQAGSSRCKACPANK 360

Qy     361 VQGAVATAGGTATLIAQCALECPAGTVLTDGTTSTYKQAASECVKCAANFYTTKQTDWVA 420
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     361 VQGAVATAGGTATLIAQCALECPAGTVLTDGTTSTYKQAASECVKCAANFYTTKQTDWVA 420

Qy     421 GIDTCTSCNKKLTSGAEANLPESAKKNIQCDFANFLSISLLLISYYLL 468
           |||||||||||||||||||||||||||||||||||||||||||||||||
Db     421 GIDTCTSCNKKLTSGAEANLPESAKKNIQCDFANFLSISLLLISYYLL 468
```

RESULT 4
AAB25859
ID AAB25859 standard; Protein; 442 AA.
XX

```
AC   AAB25859;
XX
DT   18-DEC-2000  (first entry)
XX
DE   48kD i-antigen protein sequence.
XX
KW   Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
KW   white spot disease; freshwater fish; immune response; infection control.
XX
OS   Ichthyophthirius multifiliis.
XX
PN   WO200046373-A1.
XX
PD   10-AUG-2000.
XX
PF   04-FEB-2000; 2000WO-US02962.
XX
PR   04-FEB-1999;   99US-0118634.
PR   02-MAR-1999;   99US-0122372.
PR   17-MAR-1999;   99US-0124905.
PR   27-APR-1999;   99US-0131121.
XX
PA   (UYGE-) UNIV GEORGIA RES FOUND INC.
PA   (CORR ) CORNELL RES FOUND INC.
PA   (CLAR/) CLARK T G.
PA   (DICK/) DICKERSON H W.
PA   (LINT/) LIN T.
XX
PI   Clark TG,  Dickerson HW,  Lin T;
XX
DR   WPI; 2000-506071/45.
XX
PT   Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
PT   multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
PT   infection in fish  -
XX
PS   Claim 1; Figure 1; 144pp; English.
XX
CC   This invention relates to novel i-antigen polypeptide sequences.
CC   I-antigens or immobilisation antigens ar common to a variety of
CC   hymenostomatid ciliates and their expression varies in response to
CC   environmental stimuli. This invention relates to i-antigens in
CC   Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
CC   of freshwater fish causing ichthyophthiriasis or white spot disease. The
CC   invention includes two polypeptide and polynucleotide sequences for two
CC   i-antigens, of 48 and 55 kD. Also included in the invention are
CC   antibodies capable of binding to the nucleotide sequences and a method
CC   for identifying I. multifiliis serotypes using the nucleotide sequences.
CC   A composition (containing the i-antigen nucleotide) capable of eliciting
CC   an immune response in fish is useful for prophylaxis, treatment or for
CC   controlling I. multifiliis infection in fish. Polynucleotide or protein
CC   vaccines comprising a portion of the amplified product encoding an
CC   antigenic i-antigen polypeptide obtained is also useful for treating or
CC   preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
CC   and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC   fragments identified in the invention. Sequences AAA97043-A97064
CC   (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC   isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC   AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
SQ   Sequence   442 AA;

  Query Match             36.3%;  Score 921;  DB 21;  Length 442;
  Best Local Similarity   41.8%;  Pred. No. 5.8e-65;
  Matches  214;  Conservative   45;  Mismatches  139;  Indels  114;  Gaps   19;

Qy       1 MKNNILVILIISLFINQIKSANCPVGTETNTAGQVD----DLGTPANCVNCQKNFYYNNA 56
           || |||:||||||||||:::: || ||:|  ||  |    ||||   ||||: |||||
Db       1 MKYNILLILIISLFINELRAVPCPDGTQTQ-AGLTDVGAADLGT---CVNCRPNFYYNGG 56

Qy      57 AAFVPGASTCTPCPQKKDAGAQPNPPATANLVTQCNVKCPAGTAIAGGATDYAAIITECV 116
           ||                  |  | |  ||
Db      57 AA--------------QGEANGNQPFAAN---------------------------- 71

Qy     117 NCRINFYNENAPNFNAGASTCTACPVNRVGGALTAGNAATIVAQCNVACPTGTALDDGVT 176
                       ||    |  | :||||    ||: ||:  ||:  ||||||||||||
Db      72 --------------NAARGICVPCQINRVGSVTNAGDLATLATQCSTQCPTGTALDDGVT 117

Qy     177 TDYVRSFTECVKCRLNFYYNGNN--GNTP----FNPG---------KSQCTPCPAIKPAN 221
             : ||  :|||||: |||||| :  |  |    |  |           ||| ||   |  |
Db     118 DVFDRSAAQCVKCKPNFYYNGGSPQGEAPGVQVFAAGAAAAGVAAVTSQCVPCQLNK--N 175

Qy     222 VAQATLGNDATITAQCNVACPDGTISAAGVNNWVAQNTE---CTNCAPNFYNN------N 272
           : || |  | :  ||:  || ||:   ||   :  ||    |  | |||| |
Db     176 DSPATAGAQANLATQCSNQCPTGTVLDDGVT--LVFNTSATLCVKCRPNFYYNGGSPQGE 233

Qy     273 APN---FNPG---------NSTCLPCPANKDYGAEATAGGAATLAKQCNIACPDGTAIAS 320
           ||    |  |           | |:||  ||:  : ||||  | || ||:  || ||||
Db     234 APGVQVFAAGAAAAGVAAVTSQCVPCQINKN-DSPATAGAQANLATQCSTQCPTGTAIQD 292

Qy     321 GAT-NYVILQTECLNCAANFYFDGNNFQAGSSRCKACPANKVQGAVATAGGTATLIAQCA 379
           | |  :    |:|  | ||::|:| ||:|| |:|  || :|   | |  | |||   ||
Db     293 GVTLVFSNSSTQCSQCIANYFFNG-NFEAGKSQCLKCPVSKTTPAHA-PGNTATQATQCL 350

Qy     380 LECPAGTVLTDGTTSTYKQAASECVKCAANFYTTKQTDWVAGIDTCTSCNKKLTSGAEAN 439
             ||||||| |||:: :  :|:|| ||:| |: :| | : || |||| | |||||||  |
Db     351 TTCPAGTVLDDGTSTNFVASATECTKCSAGFFASKTTGFTAGTDTCTECTKKLTSGATAK 410

Qy     440 LPESAKKNIQC---DFANFLSISLLLISYYLL 468
           :   | : :||    || |||||| ||:|||
Db     411 VYAEATQKVQCASTTFAKFLSISLLFISFYLL 442


RESULT 5
AAY97176
ID   AAY97176 standard; Protein; 442 AA.
XX
AC   AAY97176;
XX
DT   04-DEC-2000  (first entry)
XX
DE   48 kDa immobilization-antigen.
XX
KW   BTU1; beta-tubulin; protein expression system; negative selection;
KW   paclitaxel sensitivity; cell surface; antigen; protozoa; ciliate;
KW   live vaccine; Ichthyophthiius multifiliis; immobilization-antigen;
KW   i-antigen; freshwater; fish; protozoacide.
XX
OS   Ichthyophthiius multifiliis.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 1..442
FT                   /note= "Gln encoded by CAR, TAG or TAA"
XX
PN   WO200046381-A1.
XX
PD   10-AUG-2000.
XX
PF   04-FEB-2000; 2000WO-US02966.
XX
PR   04-FEB-1999;   99US-0118634.
PR   02-MAR-1999;   99US-0122372.
PR   17-MAR-1999;   99US-0124905.
PR   27-APR-1999;   99US-0131121.
XX
PA   (UYGE-) UNIV GEORGIA RES FOUND INC.
PA   (GAER/) GAERTIG J.
PA   (DICK/) DICKERSON H W.
PA   (CLAR/) CLARK T G.
XX
PI   Gaertig J,  Dickerson HW,  Clark TG;
XX
DR   WPI; 2000-514962/46.
DR   N-PSDB; AAA52134, AAA52135.
XX
PT   Recombinant expression systems for expressing heterologous nucleic
```

PT acids and producing recombinant protein, comprises nonpathogenic
PT protozoa such as Tetrahymena resistant to paclitaxel
XX
PS Disclosure; Fig 3A; 83pp; English.
XX
CC Tetrahymena thermophila expresses two major beta-tubulin genes (BTU1 and
CC BTU2), which encode identical beta-tubulin proteins. Either of these two
CC genes (but not both at once) can be disrupted without a detectable change
CC in the cell phenotype. A K350L substitution in the BTU1 beta-tubulin
CC protein confers increased resistance to microtubule-depolymerizing drugs
CC and increased sensitivity to paclitaxel, a microtubule-stabilizing drug.
CC Cells carrying the Btu1-1K350M allele can be transformed to paclitaxel
CC resistance by gene replacement of Btu1-1K350M with a wild-type BTU1 gene
CC fragment, eliminating the need to incorporate a means for positive
CC selection. Where the host organism is not a T. thermophila mutant
CC containing the Btu1-1K350M allele, BTU1::neo1 construct, which
CC substitutes the coding region of the neo1 gene (conferring resistance to
CC parmomycin) for that of BTU1, can be used to generate BTU1 gene knockouts
CC and for positive selection. Heterologous nucleic acids (especially
CC encoding antigenic polypeptides) can be inserted into a BTU gene for
CC successful cell-surface expression that is maintained by way of negative
CC selection. Preferred expression vectors disrupt the Btu1-1K350M gene by
CC homologous recombination-mediated insertion of a heterologous nucleic
CC acid, thereby restoring resistance to paclitaxel in the resulting
CC transgenic host. Transgenic ciliated protozoa are useful as live vaccines
CC for stimulating an immune response in a vertebrate. The transgenic
CC protozoan host cells are also useful for producing polyclonal antibodies
CC (claimed). In particular, Tetrahymena expressing Ichthyophthiius
CC multifiliis immobilization-antigen (i-antigen) protein on their surface
CC are effective vehicles for vaccination of freshwater fish against
CC infection by I. multifiliis.
XX
SQ Sequence 442 AA;

Query Match 36.3%; Score 921; DB 21; Length 442;
Best Local Similarity 41.8%; Pred. No. 5.8e-65;
Matches 214; Conservative 45; Mismatches 139; Indels 114; Gaps 19;

```
Qy      1 MKNNILVILIISLFINQIKSANCPVGTETNTAGQVD----DLGTPANCVNCQKNFYYNNA 56
          || |||:||||||||:::::  || ||:|  ||  |    ||||   ||||: |||||
Db      1 MKYNILLILIISLFINELRAVPCPDGTQTQ-AGLTDVGAADLGT---CVNCRPNFYYNGG 56

Qy     57 AAFVPGASTCTPCPQKKDAGAQPNPPATANLVTQCNVKCPAGTAIAGGATDYAAIITECV 116
          ||                    |  | |  ||
Db     57 AA---------------QGEANGNQPFAAN---------------------------- 71

Qy    117 NCRINFYNENAPNFNAGASTCTACPVNRVGGALTAGNAATIVAQCNVACPTGTALDDGVT 176
                    ||    |  | :||||    ||: ||:  ||:  ||||||||||||
Db     72 --------------NAARGICVPCQINRVGSVTNAGDLATLATQCSTQCPTGTALDDGVT 117

Qy    177 TDYVRSFTECVKCRLNFYYNGNN--GNTP----FNPG---------KSQCTPCPAIKPAN 221
            : ||  :|||: |||||| :  |  |    |  |           ||| ||   |  |
Db    118 DVFDRSAAQCVKCKPNFYYNGGSPQGEAPGVQVFAAGAAAAGVAAVTSQCVPCQLNK--N 175

Qy    222 VAQATLGNDATITAQCNVACPDGTISAAGVNNWVAQNTE---CTNCAPNFYNN------N 272
            : || |  | :  ||:  || ||:   ||   :  ||    |  | |||| |
Db    176 DSPATAGAQANLATQCSNQCPTGTVLDDGVT--LVFNTSATLCVKCRPNFYYNGGSPQGE 233

Qy    273 APN---FNPG---------NSTCLPCPANKDYGAEATAGGAATLAKQCNIACPDGTAIAS 320
          ||    |  |          | |:||  ||:  : ||||  | || ||:  || ||||
Db    234 APGVQVFAAGAAAAGVAAVTSQCVPCQINKN-DSPATAGAQANLATQCSTQCPTGTAIQD 292

Qy    321 GAT-NYVILQTECLNCAANFYFDGNNFQAGSSRCKACPANKVQGAVATAGGTATLIAQCA 379
          | |  :    |:|  | ||::|:| ||:|| |:|  || :|   | |  | |||   ||
Db    293 GVTLVFSNSSTQCSQCIANYFFNG-NFEAGKSQCLKCPVSKTTPAHA-PGNTATQATQCL 350

Qy    380 LECPAGTVLTDGTTSTYKQAASECVKCAANFYTTKQTDWVAGIDTCTSCNKKLTSGAEAN 439
            ||||||| |||:: :  :|:|| ||:| |: :| | : || |||| | |||||||  |
Db    351 TTCPAGTVLDDGTSTNFVASATECTKCSAGFFASKTTGFTAGTDTCTECTKKLTSGATAK 410

Qy    440 LPESAKKNIQC---DFANFLSISLLLISYYLL 468
          :   | : :||    || ||||||| ||:|||
Db    411 VYAEATQKVQCASTTFAKFLSISLLFISFYLL 442
```

RESULT 6
AAB25889
ID AAB25889 standard; Protein; 409 AA.
XX
AC AAB25889;
XX
DT 18-DEC-2000 (first entry)
XX
DE IAG48 (G1) surface protein amino acid sequence.
XX
KW Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
KW white spot disease; freshwater fish; immune response; infection control.
XX
OS Ichthyophthirius multifiliis.
XX
PN WO200046373-A1.
XX
PD 10-AUG-2000.
XX
PF 04-FEB-2000; 2000WO-US02962.
XX
PR 04-FEB-1999; 99US-0118634.
PR 02-MAR-1999; 99US-0122372.
PR 17-MAR-1999; 99US-0124905.
PR 27-APR-1999; 99US-0131121.
XX
PA (UYGE-) UNIV GEORGIA RES FOUND INC.
PA (CORR) CORNELL RES FOUND INC.
PA (CLAR/) CLARK T G.
PA (DICK/) DICKERSON H W.
PA (LINT/) LIN T.
XX
PI Clark TG, Dickerson HW, Lin T;
XX
DR WPI; 2000-506071/45.
XX
PT Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
PT multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
PT infection in fish -
XX
PS Disclosure; Figure 8; 144pp; English.
XX
CC This invention relates to novel i-antigen polypeptide sequences.
CC I-antigens or immobilisation antigens ar common to a variety of
CC hymenostomatid ciliates and their expression varies in response to
CC environmental stimuli. This invention relates to i-antigens in
CC Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
CC of freshwater fish causing ichthyophthiriasis or white spot disease. The
CC invention includes two polypeptide and polynucleotide sequences for two
CC i-antigens, of 48 and 55 kD. Also included in the invention are
CC antibodies capable of binding to the nucleotide sequences and a method
CC for identifying I. multifiliis serotypes using the nucleotide sequences.
CC A composition (containing the i-antigen nucleotide) capable of eliciting
CC an immune response in fish is useful for prophylaxis, treatment or for
CC controlling I. multifiliis infection in fish. Polynucleotide or protein
CC vaccines comprising a portion of the amplified product encoding an
CC antigenic i-antigen polypeptide obtained is also useful for treating or
CC preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
CC and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC fragments identified in the invention. Sequences AAA97043-A97064
CC (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
SQ Sequence 409 AA;

Query Match 31.6%; Score 801.5; DB 21; Length 409;
Best Local Similarity 39.5%; Pred. No. 1.7e-55;
Matches 187; Conservative 39; Mismatches 137; Indels 111; Gaps 18;

```
Qy     23 CPVGTETNTAGQVD----DLGTPANCVNCQKNFYYNNAAAFVPGASTCTPCPQKKDAGAQ 78
```

```
          || ||:|  ||  |    ||||   ||||: |||||  ||                    |
Db      4 CPDGTQTQ-AGLTDVGAADLGT---CVNCRPNFYYNGGAA---------------QGEAN 44

Qy     79 PNPPATANLVTQCNVKCPAGTAIAGGATDYAAIITECVNCRINFYNENAPNFNAGASTCT 138
           | |  ||                                              ||    |
Db     45 GNQPFAAN-----------------------------------------------NAARGICV 60

Qy    139 ACPVNRVGGALTAGNAATIVAQCNVACPTGTALDDGVTTDYVRSFTECVKCRLNFYYNGN 198
           | :||||    ||: ||:  ||:  ||||||||||||  : ||  :||||: ||||||
Db     61 PCQINRVGSVTNAGDLATLATQCSTQCPTGTALDDGVTDVFDRSAAQCVKCKPNFYYNGG 120

Qy    199 N--GNTP----FNPG---------KSQCTPCPAIKPANVAQATLGNDATITAQCNVACPD 243
           :  |  |    |  |          ||| ||   |  | : || |  | :  ||:  ||
Db    121 SPQGEAPGVQVFAAGAAAAGVAAVTSQCVPCQLNK--NDSPATAGAQANLATQCSNQCPT 178

Qy    244 GTISAAGVNNWVAQNTE---CTNCAPNFYNN------NAPN---FNPG---------NST 282
           ||:   ||   :  ||    |  | |||| |       ||    |  |          |
Db    179 GTVLDDGVT--LVFNTSATLCVKCRPNFYYNGGSPQGEAPGVQVFAAGAAAAGVAAVTSQ 236

Qy    283 CLPCPANKDYGAEATAGGAATLAKQCNIACPDGTAIASGAT-NYVILQTECLNCAANFYF 341
           |:||  ||:  : ||||  | || ||:  || ||||  | |  :    |:|  | ||::|
Db    237 CVPCQINKN-DSPATAGAQANLATQCSTQCPTGTAIQDGVTLVFSNSSTQCSQCIANYFF 295

Qy    342 DGNNFQAGSSRCKACPANKVQGAVATAGGTATLIAQCALECPAGTVLTDGTTSTYKQAAS 401
           :| ||:|| |:|  || :|   | |  | |||   ||   ||||||| |||:: :  :|:
Db    296 NG-NFEAGKSQCLKCPVSKTTPAHA-PGNTATQATQCLTTCPAGTVLDDGTSTNFVASAT 353

Qy    402 ECVKCAANFYTTKQTDWVAGIDTCTSCNKKLTSGAEANLPESAKKNIQCDFANF 455
           || ||:| |: :| | : || |||| | ||||||| | :   | : :||    |
Db    354 ECTKCSAGFFASKTTGFTAGTDTCTECTKKLTSGATAKVYAEATQKVQCASTTF 407
```

RESULT 7
AAB25885
ID AAB25885 standard; Peptide; 76 AA.
XX
AC AAB25885;
XX
DT 18-DEC-2000 (first entry)
XX
DE 55kD i-antigen amino acid repeat sequence SEQ ID 57.
XX
KW Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
KW white spot disease; freshwater fish; immune response; infection control.
XX
OS Ichthyophthirius multifiliis.
XX
PN WO200046373-A1.
XX
PD 10-AUG-2000.
XX
PF 04-FEB-2000; 2000WO-US02962.
XX
PR 04-FEB-1999; 99US-0118634.
PR 02-MAR-1999; 99US-0122372.
PR 17-MAR-1999; 99US-0124905.
PR 27-APR-1999; 99US-0131121.
XX
PA (UYGE-) UNIV GEORGIA RES FOUND INC.
PA (CORR) CORNELL RES FOUND INC.
PA (CLAR/) CLARK T G.
PA (DICK/) DICKERSON H W.
PA (LINT/) LIN T.
XX
PI Clark TG, Dickerson HW, Lin T;
XX
DR WPI; 2000-506071/45.
XX
PT Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
PT multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
PT infection in fish -
XX
PS Disclosure; Figure 5b; 144pp; English.
XX
CC This invention relates to novel i-antigen polypeptide sequences.
CC I-antigens or immobilisation antigens ar common to a variety of
CC hymenostomatid ciliates and their expression varies in response to
CC environmental stimuli. This invention relates to i-antigens in
CC Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
CC of freshwater fish causing ichthyophthiriasis or white spot disease. The
CC invention includes two polypeptide and polynucleotide sequences for two
CC i-antigens, of 48 and 55 kD. Also included in the invention are
CC antibodies capable of binding to the nucleotide sequences and a method
CC for identifying I. multifiliis serotypes using the nucleotide sequences.
CC A composition (containing the i-antigen nucleotide) capable of eliciting
CC an immune response in fish is useful for prophylaxis, treatment or for
CC controlling I. multifiliis infection in fish. Polynucleotide or protein
CC vaccines comprising a portion of the amplified product encoding an
CC antigenic i-antigen polypeptide obtained is also useful for treating or
CC preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
CC and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC fragments identified in the invention. Sequences AAA97043-A97064
CC (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
SQ Sequence 76 AA;

Query Match 16.7%; Score 424; DB 21; Length 76;
Best Local Similarity 100.0%; Pred. No. 2e-26;
Matches 76; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy    165 CPTGTALDDGVTTDYVRSFTECVKCRLNFYYNGNNGNTPFNPGKSQCTPCPAIKPANVAQ 224
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 CPTGTALDDGVTTDYVRSFTECVKCRLNFYYNGNNGNTPFNPGKSQCTPCPAIKPANVAQ 60

Qy    225 ATLGNDATITAQCNVA 240
           ||||||||||||||||
Db     61 ATLGNDATITAQCNVA 76
```

RESULT 8
AAB25883
ID AAB25883 standard; Peptide; 72 AA.
XX
AC AAB25883;
XX
DT 18-DEC-2000 (first entry)
XX
DE 55kD i-antigen amino acid repeat sequence SEQ ID 55.
XX
KW Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
KW white spot disease; freshwater fish; immune response; infection control.
XX
OS Ichthyophthirius multifiliis.
XX
PN WO200046373-A1.
XX
PD 10-AUG-2000.
XX
PF 04-FEB-2000; 2000WO-US02962.
XX
PR 04-FEB-1999; 99US-0118634.
PR 02-MAR-1999; 99US-0122372.
PR 17-MAR-1999; 99US-0124905.
PR 27-APR-1999; 99US-0131121.
XX
PA (UYGE-) UNIV GEORGIA RES FOUND INC.
PA (CORR) CORNELL RES FOUND INC.
PA (CLAR/) CLARK T G.
PA (DICK/) DICKERSON H W.
PA (LINT/) LIN T.
XX
PI Clark TG, Dickerson HW, Lin T;
XX
DR WPI; 2000-506071/45.

```
XX
PT   Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
PT   multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
PT   infection in fish -
XX
PS   Disclosure; Figure 5b; 144pp; English.
XX
CC   This invention relates to novel i-antigen polypeptide sequences.
CC   I-antigens or immobilisation antigens ar common to a variety of
CC   hymenostomatid ciliates and their expression varies in response to
CC   environmental stimuli. This invention relates to i-antigens in
CC   Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
CC   of freshwater fish causing ichthyophthiriasis or white spot disease. The
CC   invention includes two polypeptide and polynucleotide sequences for two
CC   i-antigens, of 48 and 55 kD. Also included in the invention are
CC   antibodies capable of binding to the nucleotide sequences and a method
CC   for identifying I. multifiliis serotypes using the nucleotide sequences.
CC   A composition (containing the i-antigen nucleotide) capable of eliciting
CC   an immune response in fish is useful for prophylaxis, treatment or for
CC   controlling I. multifiliis infection in fish. Polynucleotide or protein
CC   vaccines comprising a portion of the amplified product encoding an
CC   antigenic i-antigen polypeptide obtained is also useful for treating or
CC   preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
CC   and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC   fragments identified in the invention. Sequences AAA97043-A97064
CC   (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC   isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC   AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
SQ   Sequence   72 AA;

  Query Match             15.9%;  Score 404;  DB 21;  Length 72;
  Best Local Similarity   100.0%;  Pred. No. 7.3e-25;
  Matches   72;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      23 CPVGTETNTAGQVDDLGTPANCVNCQKNFYYNNAAAFVPGASTCTPCPQKKDAGAQPNPP 82
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 CPVGTETNTAGQVDDLGTPANCVNCQKNFYYNNAAAFVPGASTCTPCPQKKDAGAQPNPP 60

Qy      83 ATANLVTQCNVK 94
           ||||||||||||
Db      61 ATANLVTQCNVK 72


RESULT 9
AAB25886
ID   AAB25886 standard; Peptide; 71 AA.
XX
AC   AAB25886;
XX
DT   18-DEC-2000  (first entry)
XX
DE   55kD i-antigen amino acid repeat sequence SEQ ID 58.
XX
KW   Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
KW   white spot disease; freshwater fish; immune response; infection control.
XX
OS   Ichthyophthirius multifiliis.
XX
PN   WO200046373-A1.
XX
PD   10-AUG-2000.
XX
PF   04-FEB-2000; 2000WO-US02962.
XX
PR   04-FEB-1999;   99US-0118634.
PR   02-MAR-1999;   99US-0122372.
PR   17-MAR-1999;   99US-0124905.
PR   27-APR-1999;   99US-0131121.
XX
PA   (UYGE-) UNIV GEORGIA RES FOUND INC.
PA   (CORR ) CORNELL RES FOUND INC.
PA   (CLAR/) CLARK T G.
PA   (DICK/) DICKERSON H W.
PA   (LINT/) LIN T.
XX
PI   Clark TG,  Dickerson HW,  Lin T;
XX
DR   WPI; 2000-506071/45.
XX
PT   Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
PT   multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
PT   infection in fish -
XX
PS   Disclosure; Figure 5b; 144pp; English.
XX
CC   This invention relates to novel i-antigen polypeptide sequences.
CC   I-antigens or immobilisation antigens ar common to a variety of
CC   hymenostomatid ciliates and their expression varies in response to
CC   environmental stimuli. This invention relates to i-antigens in
CC   Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
CC   of freshwater fish causing ichthyophthiriasis or white spot disease. The
CC   invention includes two polypeptide and polynucleotide sequences for two
CC   i-antigens, of 48 and 55 kD. Also included in the invention are
CC   antibodies capable of binding to the nucleotide sequences and a method
CC   for identifying I. multifiliis serotypes using the nucleotide sequences.
CC   A composition (containing the i-antigen nucleotide) capable of eliciting
CC   an immune response in fish is useful for prophylaxis, treatment or for
CC   controlling I. multifiliis infection in fish. Polynucleotide or protein
CC   vaccines comprising a portion of the amplified product encoding an
CC   antigenic i-antigen polypeptide obtained is also useful for treating or
CC   preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
CC   and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC   fragments identified in the invention. Sequences AAA97043-A97064
CC   (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC   isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC   AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
SQ   Sequence   71 AA;

  Query Match             15.9%;  Score 403;  DB 21;  Length 71;
  Best Local Similarity   100.0%;  Pred. No. 8.6e-25;
  Matches   71;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy     241 CPDGTISAAGVNNWVAQNTECTNCAPNFYNNNAPNFNPGNSTCLPCPANKDYGAEATAGG 300
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 CPDGTISAAGVNNWVAQNTECTNCAPNFYNNNAPNFNPGNSTCLPCPANKDYGAEATAGG 60

Qy     301 AATLAKQCNIA 311
           |||||||||||
Db      61 AATLAKQCNIA 71


RESULT 10
AAB25888
ID   AAB25888 standard; Peptide; 72 AA.
XX
AC   AAB25888;
XX
DT   18-DEC-2000  (first entry)
XX
DE   55kD i-antigen amino acid repeat sequence SEQ ID 60.
XX
KW   Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
KW   white spot disease; freshwater fish; immune response; infection control.
XX
OS   Ichthyophthirius multifiliis.
XX
PN   WO200046373-A1.
XX
PD   10-AUG-2000.
XX
PF   04-FEB-2000; 2000WO-US02962.
XX
PR   04-FEB-1999;   99US-0118634.
PR   02-MAR-1999;   99US-0122372.
```

```
PR   17-MAR-1999;   99US-0124905.
PR   27-APR-1999;   99US-0131121.
XX
PA   (UYGE-) UNIV GEORGIA RES FOUND INC.
PA   (CORR ) CORNELL RES FOUND INC.
PA   (CLAR/) CLARK T G.
PA   (DICK/) DICKERSON H W.
PA   (LINT/) LIN T.
XX
PI   Clark TG,  Dickerson HW,  Lin T;
XX
DR   WPI; 2000-506071/45.
XX
PT   Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
PT   multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
PT   infection in fish  -
XX
PS   Disclosure; Figure 5b; 144pp; English.
XX
CC   This invention relates to novel i-antigen polypeptide sequences.
CC   I-antigens or immobilisation antigens ar common to a variety of
CC   hymenostomatid ciliates and their expression varies in response to
CC   environmental stimuli. This invention relates to i-antigens in
CC   Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
CC   of freshwater fish causing ichthyophthiriasis or white spot disease. The
CC   invention includes two polypeptide and polynucleotide sequences for two
CC   i-antigens, of 48 and 55 kD. Also included in the invention are
CC   antibodies capable of binding to the nucleotide sequences and a method
CC   for identifying I. multifiliis serotypes using the nucleotide sequences.
CC   A composition (containing the i-antigen nucleotide) capable of eliciting
CC   an immune response in fish is useful for prophylaxis, treatment or for
CC   controlling I. multifiliis infection in fish. Polynucleotide or protein
CC   vaccines comprising a portion of the amplified product encoding an
CC   antigenic i-antigen polypeptide obtained is also useful for treating or
CC   preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
CC   and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC   fragments identified in the invention. Sequences AAA97043-A97064
CC   (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC   isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC   AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
SQ   Sequence   72 AA;

  Query Match             15.3%;  Score 389;  DB 21;  Length 72;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-23;
  Matches   72;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy    382 CPAGTVLTDGTTSTYKQAASECVKCAANFYTTKQTDWVAGIDTCTSCNKKLTSGAEANLP 441
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 CPAGTVLTDGTTSTYKQAASECVKCAANFYTTKQTDWVAGIDTCTSCNKKLTSGAEANLP 60

Qy    442 ESAKKNIQCDFA 453
          ||||||||||||
Db     61 ESAKKNIQCDFA 72


RESULT 11
AAB25884
ID   AAB25884 standard; Peptide; 70 AA.
XX
AC   AAB25884;
XX
DT   18-DEC-2000  (first entry)
XX
DE   55kD i-antigen amino acid repeat sequence SEQ ID 56.
XX
KW   Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
KW   white spot disease; freshwater fish; immune response; infection control.
XX
OS   Ichthyophthirius multifiliis.
XX
PN   WO200046373-A1.
XX
PD   10-AUG-2000.
XX
PF   04-FEB-2000; 2000WO-US02962.
XX
PR   04-FEB-1999;   99US-0118634.
PR   02-MAR-1999;   99US-0122372.
PR   17-MAR-1999;   99US-0124905.
PR   27-APR-1999;   99US-0131121.
XX
PA   (UYGE-) UNIV GEORGIA RES FOUND INC.
PA   (CORR ) CORNELL RES FOUND INC.
PA   (CLAR/) CLARK T G.
PA   (DICK/) DICKERSON H W.
PA   (LINT/) LIN T.
XX
PI   Clark TG,  Dickerson HW,  Lin T;
XX
DR   WPI; 2000-506071/45.
XX
PT   Novel i-antigen polypeptides and polynuclectides from Ichthyophthirius
PT   multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
PT   infection in fish  -
XX
PS   Disclosure; Figure 5b; 144pp; English.
XX
CC   This invention relates to novel i-antigen polypeptide sequences.
CC   I-antigens or immobilisation antigens ar common to a variety of
CC   hymenostomatid ciliates and their expression varies in response to
CC   environmental stimuli. This invention relates to i-antigens in
CC   Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
CC   of freshwater fish causing ichthyophthiriasis or white spot disease. The
CC   invention includes two polypeptide and polynucleotide sequences for two
CC   i-antigens, of 48 and 55 kD. Also included in the invention are
CC   antibodies capable of binding to the nucleotide sequences and a method
CC   for identifying I. multifiliis serotypes using the nucleotide sequences.
CC   A composition (containing the i-antigen nucleotide) capable of eliciting
CC   an immune response in fish is useful for prophylaxis, treatment or for
CC   controlling I. multifiliis infection in fish. Polynucleotide or protein
CC   vaccines comprising a portion of the amplified product encoding an
CC   antigenic i-antigen polypeptide obtained is also useful for treating or
CC   preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
CC   and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC   fragments identified in the invention. Sequences AAA97043-A97064
CC   (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC   isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC   AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
SQ   Sequence   70 AA;

  Query Match             14.8%;  Score 375;  DB 21;  Length 70;
  Best Local Similarity   100.0%;  Pred. No. 1.4e-22;
  Matches   70;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy     95 CPAGTAIAGGATDYAAIITECVNCRINFYNENAPNFNAGASTCTACPVNRVGGALTAGNA 154
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 CPAGTAIAGGATDYAAIITECVNCRINFYNENAPNFNAGASTCTACPVNRVGGALTAGNA 60

Qy    155 ATIVAQCNVA 164
          ||||||||||
Db     61 ATIVAQCNVA 70


RESULT 12
AAB25887
ID   AAB25887 standard; Peptide; 70 AA.
XX
AC   AAB25887;
XX
DT   18-DEC-2000  (first entry)
XX
DE   55kD i-antigen amino acid repeat sequence SEQ ID 59.
XX
KW   Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
```

```
KW   white spot disease; freshwater fish; immune response; infection control.
XX
OS   Ichthyophthirius multifiliis.
XX
PN   WO200046373-A1.
XX
PD   10-AUG-2000.
XX
PF   04-FEB-2000; 2000WO-US02962.
XX
PR   04-FEB-1999;   99US-0118634.
PR   02-MAR-1999;   99US-0122372.
PR   17-MAR-1999;   99US-0124905.
PR   27-APR-1999;   99US-0131121.
XX
PA   (UYGE-) UNIV GEORGIA RES FOUND INC.
PA   (CORR ) CORNELL RES FOUND INC.
PA   (CLAR/) CLARK T G.
PA   (DICK/) DICKERSON H W.
PA   (LINT/) LIN T.
XX
PI   Clark TG,  Dickerson HW,  Lin T;
XX
DR   WPI; 2000-506071/45.
XX
PT   Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
PT   multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
PT   infection in fish  -
XX
PS   Disclosure; Figure 5b; 144pp; English.
XX
CC   This invention relates to novel i-antigen polypeptide sequences.
CC   I-antigens or immobilisation antigens ar common to a variety of
CC   hymenostomatid ciliates and their expression varies in response to
CC   environmental stimuli. This invention relates to i-antigens in
CC   Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
CC   of freshwater fish causing ichthyophthiriasis or white spot disease. The
CC   invention includes two polypeptide and polynucleotide sequences for two
CC   i-antigens, of 48 and 55 kD. Also included in the invention are
CC   antibodies capable of binding to the nucleotide sequences and a method
CC   for identifying I. multifiliis serotypes using the nucleotide sequences.
CC   A composition (containing the i-antigen nucleotide) capable of eliciting
CC   an immune response in fish is useful for prophylaxis, treatment or for
CC   controlling I. multifiliis infection in fish. Polynucleotide or protein
CC   vaccines comprising a portion of the amplified product encoding an
CC   antigenic i-antigen polypeptide obtained is also useful for treating or
CC   preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
CC   and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC   fragments identified in the invention. Sequences AAA97043-A97064
CC   (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC   isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC   AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
SQ   Sequence   70 AA;

  Query Match             14.7%;  Score 373;  DB 21;  Length 70;
  Best Local Similarity   100.0%;  Pred. No. 2.1e-22;
  Matches   70;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy     312 CPDGTAIASGATNYVILQTECLNCAANFYFDGNNFQAGSSRCKACPANKVQGAVATAGGT 371
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 CPDGTAIASGATNYVILQTECLNCAANFYFDGNNFQAGSSRCKACPANKVQGAVATAGGT 60

Qy     372 ATLIAQCALE 381
           ||||||||||
Db      61 ATLIAQCALE 70


RESULT 13
ABB09437
ID   ABB09437 standard; Protein; 1588 AA.
XX
AC   ABB09437;
XX
DT   01-JUL-2002  (first entry)
XX
DE   H. influenzae DXR related polypeptide sequence.
XX
KW   DXR; reductoisomerase; enzyme; non-mevalonate isoprenoid;
KW   menaquinone; ubiquinone; virucide; ear infection; conjunctivitis;
KW   meningitis; pneumonia; conjunctivitis; bacteraemia; sinusitis;
KW   pleural empyema; endocarditis; epiglottitis.
XX
OS   Haemophilus influenzae.
XX
FH   Key             Location/Qualifiers
FT   Region          241..1431
FT                   /note= "region that appears to be accidentally inserted
FT                   into the sequence, consisting the DXR encoding DNA
FT                   sequence represented as an amino acid sequence in three
FT                   letter code"
XX
PN   WO200211673-A2.
XX
PD   14-FEB-2002.
XX
PF   09-AUG-2001; 2001WO-US24950.
XX
PR   09-AUG-2000; 2000US-223909P.
XX
PA   (SMIK ) SMITHKLINE BEECHAM CORP.
PA   (SMIK ) SMITHKLINE BEECHAM PLC.
XX
PI   Jaworski DD,  Payne DJ,  Slater-Radosti CE,  Yan K;
XX
DR   WPI; 2002-241698/29.
XX
PT   Modulating Haemophilus influenzae DXR reductoisomerase enzyme activity,
PT   useful for treating mammals or tissues infected with H. influenzae
PT   (e.g. ear infections or pneumonia) by contacting the enzyme with a
PT   modulator of its activity  -
XX
PS   Disclosure; Page 40-44; 44pp; English.
XX
CC   The invention relates to modulating an activity of a DXR reductoisomerase
CC   enzyme of Haemophilus influenzae, comprising contacting the enzyme with a
CC   compound that modulates non-mevalonate isoprenoid biosynthesis -
CC   synthesis of menaquinone or ubiquinone. Compounds of the invention act as
CC   virucides. The method is useful for treating a mammal or mammalian tissue
CC   infected with H. influenzae having DXR reductoisomerase enzyme, e.g. a
CC   human or a domestic animal. In particular, the method is useful for
CC   treating ear infections, conjunctivitis, meningitis, pneumonia,
CC   conjunctivitis, bacteraemia, sinusitis, pleural empyema, endocarditis and
CC   epiglottitis. The current sequence represents a H. influenzae DXR
CC   reductoisomerase enzyme related polypeptide sequence.
CC   Note: The current sequence contains within it the amino acid sequence
CC   given in record ABB09436 (DXR enzyme), but this is broken up by a large
CC   insertion that appears to be accidentally inserted into the sequence,
CC   consisting the DXR encoding DNA sequence represented as an amino acid
CC   sequence in three letter code.
XX
SQ   Sequence   1588 AA;

  Query Match             8.4%;  Score 213.5;  DB 23;  Length 1588;
  Best Local Similarity   25.2%;  Pred. No. 6.2e-08;
  Matches  125;  Conservative   10;  Mismatches  205;  Indels  157;  Gaps   22;

Qy      21 ANCPVGTETNTAGQVDDLGTPANCVNCQKNFYYNNAAAFVPGASTCTPCPQKKDAGAQPN 80
           | |   | | | |     || |    |          ||   | :| | |    |||
Db     644 AGCTT-TTTATTGATGCCGTAAAAAACTATGGCTCGAA---GCTTTTAC-CAGTAGATAG 698

Qy      81 PPA---------TANLVTQCNVKC----------PAGTAIAGGATDYAAIITECVNCRI 120
             |          ||   | |   |          || | | ||   ||    |
Db     699 TGAACATAATGCTATCTTTCAATCATTACCGCCAGAAGCACAAGA---AAAAATC----- 750

Qy     121 NFYNENAPNFNAGAST----CTACPVNRVGGALTAGN---------AATIVAQCNVACPT 167
```

```
Db    751 ----------GGTTTTTGCCCACTTTCTGAATTAGGTGTAAGTAAAATTATACTCACTG 799

Qy    168 GTALDDG----------------------VTTDYVRSFTECVKCRLNFYYNGNNGNTPFN 205

Db    800 GTTCTGGCGGACCATTCCGTTACACGCCACTTGAACAATTCACCAA-------------- 845

Qy    206 PGKSQCTPCPAIKPANVAQATLGNDATITAQCNVACPDGTISAAGVNNWVAQNTECTNCA 265

Db    846 CATAACACCAGAACAAGCGGTTG--CACACCCTAATTGGTCTATGGGTAAAAAAATTTCT 903

Qy    266 PNFYNNNAPNFNPGNSTCLPCPANKDYGAE---------ATAGGAATL-----AKQCNIA 311

Db    904 GTC----------GATTCAGCTACAATGATGAATAAGGGCTTGGAATACATTGAGGCTCG 953

Qy    312 CPDG-TAIASGATNYVILQTECLNCAANFYFDGNNFQAGSSRCKACPANKVQGAVATAGG 370

Db    954 CTGGCTTTTCAAT----------GCA----------AGTGCGGAAGAAATGGAAGTTAT 992

Qy    371 TATLIA---QCALECPAGTVLTDGTTSTYKQAASECVKCAANFYTTKQTDWVAGIDTC-- 425

Db    993 TATTCATCCACAATCAATTATTCATTCT----ATGGTACGG---TATGTTGACGGCTCAG 1045

Qy    426 ----TSCNKKLTSGAEA 438

Db   1046 TCATTACTCAAATGGGA 1062
```

RESULT 14
AAB25865
ID AAB25865 standard; Protein; 72 AA.
XX
AC AAB25865;
XX
DT 18-DEC-2000 (first entry)
XX
DE 48kD i-antigen repeat amino acid sequence SEQ ID 12.
XX
KW Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
KW white spot disease; freshwater fish; immune response; infection control.
XX
OS Ichthyophthirius multifiliis.
XX
PN WO200046373-A1.
XX
PD 10-AUG-2000.
XX
PF 04-FEB-2000; 2000WO-US02962.
XX
PR 04-FEB-1999; 99US-0118634.
PR 02-MAR-1999; 99US-0122372.
PR 17-MAR-1999; 99US-0124905.
PR 27-APR-1999; 99US-0131121.
XX
PA (UYGE-) UNIV GEORGIA RES FOUND INC.
PA (CORR) CORNELL RES FOUND INC.
PA (CLAR/) CLARK T G.
PA (DICK/) DICKERSON H W.
PA (LINT/) LIN T.
XX
PI Clark TG, Dickerson HW, Lin T;
XX
DR WPI; 2000-506071/45.
XX
PT Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
PT multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
PT infection in fish -
XX
PS Disclosure; Figure 5a; 144pp; English.
XX
CC This invention relates to novel i-antigen polypeptide sequences.
CC I-antigens or immobilisation antigens ar common to a variety of
CC hymenostomatid ciliates and their expression varies in response to
CC environmental stimuli. This invention relates to i-antigens in
CC Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
CC of freshwater fish causing ichthyophthiriasis or white spot disease. The
CC invention includes two polypeptide and polynucleotide sequences for two
CC i-antigens, of 48 and 55 kD. Also included in the invention are
CC antibodies capable of binding to the nucleotide sequences and a method
CC for identifying I. multifiliis serotypes using the nucleotide sequences.
CC A composition (containing the i-antigen nucleotide) capable of eliciting
CC an immune response in fish is useful for prophylaxis, treatment or for
CC controlling I. multifiliis infection in fish. Polynucleotide or protein
CC vaccines comprising a portion of the amplified product encoding an
CC antigenic i-antigen polypeptide obtained is also useful for treating or
CC preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
CC and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC fragments identified in the invention. Sequences AAA97043-A97064
CC (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
SQ Sequence 72 AA;

Query Match 8.3%; Score 212; DB 21; Length 72;
Best Local Similarity 53.6%; Pred. No. 1.4e-09;
Matches 37; Conservative 12; Mismatches 20; Indels 0; Gaps 0;

```
Qy    382 CPAGTVLTDGTTSTYKQAASECVKCAANFYTTKQTDWVAGIDTCTSCNKKLTSGAEANLP 441

Db      1 CPAGTVLDDGTSTNFVASATECTKCSAGFFASKTTGFTAGTDTCTECTKKLTSGATAKVY 60

Qy    442 ESAKKNIQC 450

Db     61 AEATQKVQC 69
```

RESULT 15
ABB64261
ID ABB64261 standard; Protein; 3396 AA.
XX
AC ABB64261;
XX
DT 26-MAR-2002 (first entry)
XX
DE Drosophila melanogaster polypeptide SEQ ID NO 19575.
XX
KW Drosophila; developmental biology; cell signalling; insecticide;
KW pharmaceutical.
XX
OS Drosophila melanogaster.
XX
PN WO200171042-A2.
XX
PD 27-SEP-2001.
XX
PF 23-MAR-2001; 2001WO-US09231.
XX
PR 23-MAR-2000; 2000US-191637P.
PR 11-JUL-2000; 2000US-0614150.
XX
PA (PEKE) PE CORP NY.
XX
PI Venter JC, Adams M, Li PWD, Myers EW;
XX
DR WPI; 2001-656860/75.
DR N-PSDB; ABL08364.
XX
PT New isolated nucleic acid detection reagent for detecting 1000 or more
PT genes from Drosophila and for elucidating cell signalling and cell-cell
PT interactions -
XX
PS Disclosure; SEQ ID NO 19575; 21pp + Sequence Listing; English.
XX
CC The invention relates to an isolated nucleic acid detection reagent
CC capable of detecting 1000 or more genes from Drosophila. The invention is

```
CC   useful in developmental biology and in elucidating cell signalling and
CC   cell-cell interactions in higher eukaryotes for the development of
CC   insecticides, therapeutics and pharmaceutical drugs. The invention
CC   discloses genomic DNA sequences (ABL16176-ABL30511), expressed DNA
CC   sequences (ABL01840-ABL16175) and the encoded proteins
CC   (ABB57737-ABB72072).
CC   The sequence data for this patent did not form part of the printed
CC   specification, but was obtained in electronic format directly from WIPO
CC   at ftp.wipo.int/pub/published_pct_sequences.
XX
SQ   Sequence   3396 AA;

  Query Match             8.1%;  Score 206;  DB 22;  Length 3396;
  Best Local Similarity   22.8%;  Pred. No. 6.7e-07;
  Matches  103;  Conservative   37;  Mismatches  181;  Indels  130;  Gaps   24;

Qy      35 VDDLGTPANCVNCQKNFYYNNAAAFVPGASTCTPCPQKK---DAGAQPNPPATANL---- 87
           :|||   ||  |                   | |    |     |   |    |:
Db    1646 IDDLLNIANIGN-----------------QCPPLRALKSQISRGFNCNVGEVLNMDTSD 1687

Qy      88 VTQCNVKCPAGTAIAGGATDYAAIITECVNCRINFYNENAPNFNAGASTCTACPVNRVGG 147
           | :| : ||||| :: |          |  |   :|           ||  ||     |
Db    1688 VPRC-LHCPAGTYVSEGQ-------NSCTYCPRGYYQNRDRQ-----GTCLRCP----AG 1730

Qy     148 ALTAGNAATIVAQCNVACPTGTALDDGVTTDYVRSFTECVKCRLNFYYNGNNGNTPFNPG 207
             |      | |   |  ||    |:          |::|  | :        |   |
Db    1731 TYTKEEGTKSQADCIPVCGYGTYSPTGL--------VPCLECPRNSF-----TAEPPTGG 1777

Qy     208 KSQCTPCPA----IKPANVAQATLGNDATITAQCNVACPDGTISAAGVNNWVAQNTECTN 263
             |  |||     :||          |:    |   |  || || |:         |:
Db    1778 FKDCQACPAQSFTYQPA----------ASNKDLCRAKCAPGTYSATGL-------APCSP 1820

Qy     264 CAPNFYNNNAPNFNPGNSTCLPCPANKDYGAEATAGGAATLAKQCN-IACPDGTAIASGA 322
           |  : |   |     |  :|  ||:|    : |: |       :||  : | :|     |
Db    1821 CPLHHYQGAA-----GAQSCNECPSNMRTDSPASKG-----REQCKPVVCGEGACQHGGL 1870

Qy     323 TNYVILQTECLNCAANFYFDGNNFQAGSSRCKACPANKVQGAVATAGGTATLIAQ---CA 379
             :   :|  | |   | |   :     | : |           ||    : |   |
Db    1871 CVPMGHDIQCF-CPAG--FSGRRCEQDIDECASQPCYN--------GGQCKDLPQGYRC- 1918

Qy     380 LECPAGTVLTDGTTSTYKQAASEC------------------VKC-AANFYTTKQTDWV 419
            |||||      :   :: ||:|                   | |   : ||  | |
Db    1919 -ECPAGY-----SGINCQEEASDCGNDTCPARAMCKNEPGYKNVTCLCRSGYTGDQCD-- 1970

Qy     420 AGIDTCTSCNKKLTSGAEANLPESAKKNIQC 450
           || ||:      :||     |  :   :|
Db    1971 VTIDPCTANGNPCGNGASCQALEQGRYKCEC 2001


Search completed: February 11, 2003, 19:46:23
Job time : 37.9429 secs
```